

# ANDREW CHU

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## EDUCATION

### University of Waterloo

Bachelor of Computer Science - Dean's Honours List

May 2028

Waterloo, ON

## EXPERIENCE

### Software Engineer

CGI

May 2025 - Present

Markham, ON

### Data Engineer Intern

Alljoined

Aug. 2024 - Sep. 2024

Toronto, ON

- Debugged critical timing issue in **EEG data preprocessing** by implementing data logging system in **Python**
- Reduced data collection script performance by **20x** by refactoring **WebSocket** script to prevent deadlocking
- Designed data processing pipeline for denoising and artifact correction using **NumPy**, **Pandas**, and **scikit-learn**

### Full-Stack Developer

Digitera Interactive

Sep. 2022 - Jan. 2023

Ottawa, ON

- Led development of "Skule News" project, a **mobile school news app** to streamline student communication
- Integrated **Firestore** for authentication, real-time updates, and cloud file storage for secure backend support
- Engineered image preview feature when uploading or editing articles in **Flutter**
- Reduced frequency of in-app crashes by **20%** by resolving **6+** bugs resulting from incorrect **Firestore** queries

## PROJECTS

### Replate - Sustainable Delivery App (GenAI Genesis Winner) | Next, Express, MongoDB, Flask, Cohere, Gemini, Twilio

- Achieved **AI Eco-Mobility Award** at GenAI Genesis among 600+ competitors
- Engineered a meal recommendation system using a dual-agent pipeline with **Cohere Command R** and **Gemini**, combining user preferences with restaurant data from the *Too Good to Go* platform
- Utilized **Express** and **Flask** backend microservices to process orders and serve live delivery updates via **Twilio** SMS

### EasyMeet.ca - Meetup Scheduling Website | React, Firebase, Mocha, GitHub, CI/CD, Figma, YAML

- Shipped a no-password mobile-first meetup scheduling website written in **React**, deployed at **easymeet.ca**
- Designed and tested **NoSQL Cloud Firestore** to protect user data from illegitimate database read and writes
- Automated **CI/CD** unit testing and deployment with build caching using **Mocha**, **Chai** and **GitHub Actions**

### Tinyraytracer - Computer Graphics Renderer | C++, Go

- Developed a fast and simple raytracer written in **Go** and **C++** for **multithreaded** CPU-based 3D rendering
- Accelerated I/O image write operations **8x** by leveraging Goroutines to write **concurrent**, performant code
- Implemented effects including specular lighting, reflection, and refraction using the Phong reflection model

### Baseline - EEG Fatigue Tracker (Hack49 Winner) | Python, FastAPI, SciPy, NumPy, MNE, Matplotlib, React, Jupyter

- Achieved **2nd Place** in "**Best in Neurotech**" category at Hack49 out of 42 unique projects
- Implemented fast brain fatigue analysis method, leveraging **MNE**, **SciPy**, and **NumPy**
- Designed data transformation pipeline converting large misformatted brain data files into processable chunks

### Eyidentify - Facial Recognition Attendance Tracker (YRHacks Winner) | Python, Flask, React, MediaPipe

- Developed a facial recognition attendance tracker capable of identifying multiple people from a single picture
- Achieved **2nd Place Overall** and "**Best Web App**" at YRHacks 2023 among **350+** participants
- Implemented a **REST API** using **Flask** to analyze photos sent from a responsive **React** dashboard application

## TECHNICAL SKILLS

**Languages:** Java, Python, C/C++, TypeScript, Go, C#, CSS, HTML, Dart, Bash

**Frameworks:** Next, React, MongoDB, MySQL, Firebase, Supabase, Express, Flask, FastAPI, Jest, Svelte, TailwindCSS

**Developer Tools:** Linux, Git, Node, Figma, Docker, Postman, Vercel, GitHub, GitLab, Cursor, Google Cloud Platform